

**REMARKS**

**I. INTRODUCTION**

Applicants gratefully acknowledge the Examiner's indication that previously-pending claims 1-62, 64-80, 96 and 97 would be allowable if the outstanding rejections of these claims under 35 U.S.C. § 112, first paragraph is addressed. (See Office Action dated April 29, 2009, p. 5, Ins. 11-14.

Figs. 10A and 10B and the specification have been amended above to remove minor informalities therefrom. Claims 3, 23, 80, 86 and 97 have been amended above to remove minor inconsistencies therefrom, but not due to any issue relating to patentability thereof. New claims 98-112 have been added. Accordingly, claims 1-62, 64-80 and 96-112 are now under consideration in the above-referenced application. Provided above, please find a claim listing indicating the current amendments to previously-pending claims 3, 23, 80, 96 and 97, and addition of new claims 98-108 on separate sheets so as to comply with the requirements set forth in 37 C.F.R. § 1.121. It is respectfully submitted that no new matter has been added.

**II. INFORMATION DISCLOSURE STATEMENT**

In the latest Office Action, the Examiner states that certain references filed with the Information Disclosure Statement of November 10, 2008 as allegedly not complying with 37 C.F.R. § 1.98(b). However, Applicants are unclear as to which references listed on the PTO-1449 form were objected to by the Examiner. This is because the Examiner did not point out any "crossed-out" references, as referred to in the previously initialed corresponding PTO-1449 form.

Applicants are submitting herewith another Information Disclosure Statement along with a corresponding PTO-1449 form. As you will ascertain, the documents which Applicants believe may have been referred to by the Examiner and include publications thereof are also included in such PTO-1449 form (but they have been already submitted to the U.S. Patent and Trademark Office for this application).

Applicants respectfully request the Examiner to acknowledge the receipt of all these reference by initialing the enclosed PTO-1449 form, and returning it to Applicants' representatives in the next communication.

### **III. OBJECTION TO DRAWINGS AND CLAIMS SHOULD BE WITHDRAWN**

The drawings stand objected to due to minor informalities. In particular, the Examiner requested that an "electrical analog filter" be included in the drawings. (See Office Action dated April 29, 2009, p. 2, last para.) As the Examiner shall ascertain, originally-filed Fig. 10A has been replaced with a modified Fig. 10A (showing the electrical analog (bandpass) filter therein. The modified drawings is submitted herewith on a separate "Replacement Sheet." Accordingly, Applicants respectfully assert that the objection to the drawings is now moot, and should therefore be withdrawn.

The Examiner also objected to claims 96 and 97 due to minor informalities. As the Examiner shall ascertain, claims 96 and 97 have been amended as suggested by the Examiner, but not for any reason relating to patentability thereof. Accordingly, the objection to claim s96 and 97 is now moot, and should therefore be withdrawn.

**IV. REJECTION UNDER 35 U.S.C. § 112 SHOULD BE WITHDRAWN**

Claims 1-62, 64-80, 96 and 97<sup>1</sup> stands rejected under 35 U.S.C. § 112, first paragraph as being allegedly non-enabling. In addition, the Examiner rejected claims 3, 23 and 80 under 35 U.S.C. § 112, first paragraph as allegedly failing to comply with the written description requirement. In addition, the Examiner rejected claims 3, 23 and 80 under 35 U.S.C. § 112, first paragraph as allegedly failing to comply with the written description requirement. Further, claims 13, 39, 46-62 and 64-70 under 35 U.S.C. § 112, first paragraph as also allegedly failing to comply with the written description requirement.

**A. Rejection of Claims 1-62, 64-80, 96 and 97**

First, referring to the 35 U.S.C. § 112, first paragraph non-enablement rejection, the Examiner states that "claims consistently recite 'at least one' first, second, third, et al. arrangement, electromagnetic radiation, dual balanced receiver, polarization diverse receiver, and so on." (Office Action dated April 29, 2009, p. 4, Ins. 5-7). However, the Examiner then contends that he "only finds enablement in the specification for one of each first, second, third, et al. arrangement, electromagnetic radiation, dual balanced receiver, polarization diverse receiver, and on as in each individual embodiment as set forth in the specification." (*Id.*, p. 4, Ins. 7-10). Then, the Examiner purports that "[t]here can be no enablement of an apparatus containing more than one arrangement configured to do a thing if the specification only sets forth one arrangement configured to do said thing in each [of] the embodiments set forth therein." (*Id.*, p. 4, Ins 10-12). The Examiner completes such allegations with a statement that "[e]nablement exists for one arrangement, one receiver,

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<sup>1</sup> While the Examiner indicated that claim "98" was rejected, since such claim was not pending at the time of the issuance of the Office Action dated April 29, 2009, Applicants believe that the Examiner intended to refer to claim "96" instead, and shall proceed with such understanding.

and so on,, but not for 'at least one'." (*Id.*, p. 4, Ins. 12-13). Applicants certainly disagree, and traverse this 35 U.S.C. § 112, first paragraph rejection of claims 1-62, 64-80, 96 and 97 as being non-enabling for at least the following reasons.

As an initial matter, Applicants respectfully assert that various claims (both independent and dependent) of the present application certainly describes "at least one" first arrangement, "at least one" second arrangement, electromagnetic radiation, etc. Clearly, the claims of the present application, while covering more than one such arrangements, electromagnetic radiations, etc., do not recite a plurality of arrangements, electromagnetic radiation, etc. That being the case, the specification of the present application need only to enable the use and/or implementation of "at least one" arrangement, electromagnetic radiation, dual balanced receiver, polarization diverse receiver, etc., and clearly does not have to provide any explicit disclosure of more than one such arrangements electromagnetic radiation, dual balanced receiver, polarization diverse receiver, etc. (while certainly covering these arrangements, electromagnetic radiations, dual balanced receivers, polarization diverse receivers, etc. in the claims).

In addition, nowhere in the Specification of the present application is there any limitation that the first arrangement(s), second arrangement(s), third arrangement(s), eletcromagnetic radiation(s), dual balanced receiver(s), polarization diverse receiver(s), etc. *are only single* arrangements, electromagnetic radiations, dual balanced receivers, polarization diverse receivers, etc. For example, while the Specification describes exemplary embodiments which include, for each of the first, second, third, etc. arrangements, at least one such arrangement performing the procedures recited in the claims of the present application, there is certainly no restriction that the multiple first,

second, third, etc. arrangements can be implemented to perform such procedures. Certainly, paragraphs [0019]-[0026] of U.S. Patent Publication No. 2006/0244973 of the originally-filed Specification provide support for reciting such subject matter, which clearly describes e.g., “at least one first arrangement”, “at least one second arrangement”, “at least one” first, second, etc. electromagnetic radiation(s), and so on. Further, e.g., each of the first, second, third, etc. arrangements may have multiple components, parts and/or sections, each or combination of which can be considered as an arrangement. In addition, the original specification provides the following to provide enabling support for the recitations in the claims:

“The foregoing merely illustrates the principles of the invention. Various modifications and alterations to the described embodiments will be apparent to those skilled in the art in view of the teachings herein. It will thus be appreciated that those skilled in the art will be able to devise numerous systems, arrangements and methods which, although not explicitly shown or described herein, embody the principles of the invention and are thus within the spirit and scope of the present invention.” (U.S. Patent Publication No. 2006/0244973, para. [0182]).

Thus, surely, according to the enabling disclosure of the Specification of the present application, one having ordinary skill in the art would clearly understand that while the specification describes at least one first arrangement, at least one second arrangement, at least one third arrangement, at least one electromagnetic radiation, etc. there can be more than one such arrangements, electromagnetic radiations, etc., and provides that various variations are within the scope of the present disclosure.

Indeed, one having ordinary skill in the art would certainly be able to implement a number of variations, including the use of multiple arrangements, radiation, dual balanced receivers, polarization diverse receivers, etc. based on the description

provided in the disclosure of the present application. If necessary, Applicants can submit a declaration under 37 C.F.R. § 1.132 to confirm such fact.

B. Rejection of Claims 3, 23 and 80

Next, turning to the 35 U.S.C. § 112, first paragraph rejection of claims 3, 23 and 80 as allegedly failing to comply with the written description requirement, as the Examiner shall ascertain, these claims have been amended to recite at least partially reducing, differentiating or eliminating “negative frequency components of the interference.”

Indeed, Applicants respectfully assert that the originally-filed disclosure of the present application certainly provides written description for such recited subject matter. For example, paragraph [0143] of the published application associated with the present application provides that:

“One of the benefits of using the frequency shifter 311 is that the effective ranging depth can be doubled. This can be illustrated in the electrical frequency domain, as shown in FIG. 10C in which a graph 380 depicts the fringe visibility curve given by the instantaneous output spectrum of the source. The visibility curve has a Gaussian profile if the source's instantaneous spectrum is Gaussian. A curve 390 depicts the transmission efficiency profile of an electrical filter, which is optimized for a given Nyquist frequency defined as the half of the sampling frequency. Section (a) of FIG. 10C shows a typical case where there is no frequency shifter in the interferometer and the electrical filter is a low pass filter. Because the positive and negative frequency band is not differentiable, the images associated with the positive and negative frequency band, respectively, are overlapped. Because of this ambiguity, only half of the frequency range (zero to  $f_N$ ) or (zero to  $-f_N$ ) is usable in this case. *However, using a frequency shifter results in a shift of the visibility curve by  $f_{FS}$ , as shown in portion (b) of FIG. 10C. With a bandpass filter (or a low pass filter), both sides of the frequency band centered at  $f_{FS}$  produce images without ambiguity, resulting in a twice larger ranging depth compared to section (a) of FIG. 10C.* (Emphasis added).

Applicants further note that paras. [0166]-[0167] (and associated Fig. 16) also provide the written description for similar subject matter.

Indeed, because of this frequency shift as described in the above-referenced portion of the originally-filed specification (and drawings associated therewith), the negative frequency components of the interference are at least partially reduced, differentiated or likely eliminated. Therefore, the specification (and Fig. 10C) provides a clear description and a disclosure of the subject matter as recited in amended claims 3, 23 and 80.

C. Rejection of Claims 13, 39, 46-62 and 64-70

Further, turning to the 35 U.S.C. § 112, first paragraph rejection of claims 13, 39, 46-62 and 64-70 as allegedly failing to comply with the written description requirement, Applicants respectfully assert that the originally-filed specification (and drawings associated therewith certainly provide the written description for the subject matter recited in claims 13, 39, 46-62 and 64-70.

In particular, these claims recite, *inter alia*, polarization modulator or polarization modulation (as the case may be). The Examiner contends that the specification of the present application fails to provide written description of “a polarization modulator or a polarization modulation step that modulates the polarization of radiation over time ... .” (Office Action dated April 29, 2009, p. 5, Ins. 5-8). Applicants respectfully disagree and traverse this 35 U.S.C. § 112, first paragraph rejection for at least the following reasons.

Indeed, it is respectfully asserted that the clear support and written description for such recited subject matter in the claims is provided in the specification of the published application. In particular, e.g., paragraph [0020] of the published application associated with the present application provides that:

"[I]n one exemplary embodiment of the present invention, the third radiation may be a radiation returned from the sample, and the at least one fourth radiation is a radiation returned from the reference. The frequency of the first, second, third and/or fourth radiation may be shifted. An image can be generated based on the detected interference. A probe may be used which scans a transverse location of the sample to generate scanning data, and provides the scanning data to the third arrangement so as to generate the image. The scanning data may include the detected interference obtained at multiple transverse locations on the sample. At least one photodetector and at least one electrical filter may be used which follow a photodetector, which is followed by an electrical filter. The electric filter may be a bandpass filter having a center frequency that is approximately the same as a magnitude of the frequency shift by the frequency shifting arrangement. A transmission profile of the electrical filter can vary substantially over its passband. The probe may include a rotary junction and a fiber-optic catheter. The catheter can be rotated at a speed higher than 30 revolutions per second. *At least one polarization modulator may be provided.*" (Emphasis added).

As should certainly be understood by those having ordinary skill in the art by reading such disclosure, the polarization modulator/modulation requires polarization of radiation over time. Thus, Applicants respectfully assert that the originally-filed specification provides clear and unequivocal written description for the subject matter recited in claims 13, 39, 46-62 and 64-70 of the present application.

D. Summary

Accordingly, Applicants respectfully assert that for at least the reasons as set forth herein above, the 35 U.S.C. § 112, first paragraph rejections should be withdrawn.



**V. NEW CLAIMS 98-112**

New claims 98-112 have been added above to recite additional subject matter for Examiner's consideration. Support for these new claims can be found in the specification and the drawings. Claims 98-112 depend from independent claim 71, and thus are believed to be allowable over the prior art of record for at least the same reasons as provided in the prior response respect independent claim 71. In addition, new claims 98-112 include certain recitations as provided in previously-pending dependent claims which were presented in the prior response. Thus, the arguments provided above for such claims are applicable to new claims 98-112. A conformation of allowability of these new claims is thus respectfully requested.

**VI. CONCLUSION**

In light of the foregoing, Applicants respectfully submit that pending claims 1-62, 64-80 and 96-112 are in condition for allowance. Prompt consideration, reconsideration and allowance of the present application are therefore earnestly solicited.

Respectfully submitted,

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